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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,448	12/17/2003	Amela Kreho Wilson	LCOM:016	8094

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EXAMINER
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LE, JOHN H

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓ # EX

<b>Office Action Summary</b>	Application No. 10/738,448	Applicant(s) WILSON, AMELA KREHO	
	Examiner John H. Le	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 8-10, 17-18, 23-25 is/are rejected.
- 7) ☒ Claim(s) 3-7, 11-16, 19-22 and 26-28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/16/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION*****Drawings***

1. The drawings of Figs. 1, 2A, 2B, 3A, 3B, 3C, 4, 5A, 5B, 5C, 6, and 7 are objected to because lines, numbers, and letters not uniformly thick and well defined, clean, durable, and black (poor line quality). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

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2. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Rahman et al. (US application No. 60/468,067).

Regarding claim 1, Rahman et al. teach a method for identifying signal sources (detect which phase of the power transformer 10 has an internal fault, e.g. [0035]), comprising: determining phase differential data for a signal stream, the signal stream corresponding to signal data from a single signal source (power source 16) (e.g. Fig.1, [0035]); and applying wavelet packet processing (wavelet packet transform decomposition 32, filtering operation) to the phase differential data to generate a wavelet-based signature for the signal source (power source 16)(e.g. [0019], [0035]).

Regarding claim 17, Rahman et al. teach a signal source identification system (fig.1), comprising: a phase pre-processing sub-system (wave transform 10) coupled to receive an individual signal stream, the phase pre processing sub-system being configured to determine phase differential data for the individual signal stream (e.g., Fig.1, [0035], [0020]-[0022]); and a wavelet-based signal processing sub-system (processing 28) coupled to receive the phase differential

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data from the phase pre-processing sub-system (10), the wavelet-based signal processing sub-system (28) being configured to apply wavelet packet processing (wavelet packet transform decomposition 32, filtering operation) to generate a signature for the individual signal source (power source 16)(e.g. [0019], [0035]).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 8-10, 18-19, 23-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman et al. (US application No. 60/468,067) in view of Nguyen et al. (USP 6,105,015).

Regarding claims 2 and 18, Rahman et al. fail to teach step of acquiring data signals including combined signal streams from a plurality of signal sources; pre-processing the data signals to separate the data signals into a plurality individual signal streams, each individual signal stream being deemed to have originated from a single signal source; and using one of the individual signal streams for the determining step.

Nguyen et al. teach step of acquiring data signals including combined signal streams from a plurality of signal sources (e.g. Col.4, lines 17-26); pre-processing the data signals (data preprocessing module 24) to separate the data signals into a plurality individual signal streams (e.g. Col.4, line 66-Col.5, lines 7),

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each individual signal stream being deemed to have originated from a single signal source (e.g. Col.4, lines 17-26); and using one of the individual signal streams for the determining step (e.g. Col.5, lines 1-7).

Regarding claims 8 and 23, Nguyen et al. teach performing full wavelet packet decomposition into multiple levels to generate a plurality of decomposed nodes (e.g. Figs.3, 4).

Regarding claims 9 and 24, Nguyen et al. teach selecting a plurality of decomposed nodes (e.g. Figs.3, 4) and using wavelet coefficients for these selected nodes in generating the wavelet-based signature (coefficient selector 36, Col.5, lines 8-63).

Regarding claims 10 and 25, Nguyen et al. teach the multiple levels is four levels (e.g. Figs.3, 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include steps of acquiring data signals including combined signal streams from a plurality of signal sources; pre-processing the data signals to separate the data signals into a plurality individual signal streams as taught by Nguyen et al. in a method for identifying signal sources of Rahman et al. for the purpose of providing a system and method for signal classification.

#### ***Allowable Subject Matter***

5. Claims 3-7, 11-16, 19-22, and 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 3, none of the prior art of record teaches or suggests the combination of a method for identifying signal sources, wherein the method comprising steps of: determining phase differential data for a signal stream, the signal stream corresponding to signal data from a single signal source; and applying wavelet packet processing to the phase differential data to generate a wavelet-based signature for the signal source, wherein the method further comprising step of storing in a database wavelet-based signatures corresponding to known signal sources; and comparing the signature for the signal source with the stored data to determine if the signature for the signal source matches wavelet-based signatures stored for known signal source. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 7, none of the prior art of record teaches or suggests the combination of a method for identifying signal sources, wherein the method comprising steps of: determining phase differential data for a signal stream, the signal stream corresponding to signal data from a single signal source; and applying wavelet packet processing to the phase differential data to generate a wavelet-based signature for the signal source, wherein the method further comprising step of acquiring data signals including combined signal streams from a plurality of signal sources; pre-processing the data signals to separate the data

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signals into a plurality individual signal streams, each individual signal stream being deemed to have originated from a single signal source; and using one of the individual signal streams for the determining step; and resampling the data signals at a selected sampling rate prior to the pre-processing step. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 11, none of the prior art of record teaches or suggests the combination of a method for identifying signal sources, wherein the method comprising steps of: determining phase differential data for a signal stream, the signal stream corresponding to signal data from a single signal source; and applying wavelet packet processing to the phase differential data to generate a wavelet-based signature for the signal source, wherein the applying step comprising performing full wavelet packet decomposition into multiple levels to generate a plurality of decomposed nodes; selecting a plurality of decomposed nodes and using wavelet coefficients for these selected nodes in generating the wavelet-based signature; wherein nodes 3, 7 and 16 are selected for use in generating the wavelet-based signature, the node numbers representing a numbering scheme where the first level nodes are numbered 1 and 2 from low to high; where the second level nodes are numbered 3, 4, 5 and 6 from low to high; where the third level nodes are numbered 7, 8, 9, 10, 11, 12, 13 and 14 from low to high; and the fourth level nodes are numbered 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30 from low to high. It is these limitations as they



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are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 19, none of the prior art of record teaches or suggests the combination of a signal source identification system, comprising: a phase pre-processing sub-system coupled to receive an individual signal stream, the phase pre processing sub-system being configured to determine phase differential data for the individual signal stream; and a wavelet-based signal processing sub-system coupled to receive the phase differential data from the phase pre-processing sub-system, the wavelet-based signal processing sub-system being configured to apply wavelet packet processing to generate a signature for the individual signal source; wherein the system further comprising: a database having stored data, the stored data including wavelet-based signatures corresponding to known signal sources; and a signal source identification sub-system coupled to receive the signature from the wavelet-based signal processing sub-system, the signal source identification sub-system being configured to compare the signature with the stored data and to determine if the individual signal source matches wavelet-based signatures of a known signal source. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 26, none of the prior art of record teaches or suggests the combination of a signal source identification system, comprising: a phase

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pre-processing sub-system coupled to receive an individual signal stream, the phase pre processing sub-system being configured to determine phase differential data for the individual signal stream; and a wavelet-based signal processing sub-system coupled to receive the phase differential data from the phase pre-processing sub-system, the wavelet-based signal processing sub-system being configured to apply wavelet packet processing to generate a signature for the individual signal source; wherein the wavelet-based signal processing sub-system is configured to perform full wavelet packet decomposition into multiple levels to generate a plurality of decomposed nodes, wherein the wavelet-based signal processing sub-system is further configured to use wavelet coefficients for selected nodes in generating the waveletbased signature; wherein nodes 3, 7 and 16 are selected for use in generating the wavelet-based signature, the node numbers representing a numbering scheme where the first level nodes are numbered 1 and 2 from low to high; where the second level nodes are numbered 3, 4, 5 and 6 from low to high; where the third level nodes are numbered 7, 8, 9, 10, 11, 12, 13 and 14 from low to high; and the fourth level nodes are numbered 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30 from low to high. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

***Contact Information***

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H Le whose telephone number is 571-272-2275. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

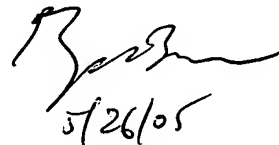


John H. Le

Patent Examiner-Group 2863

May 18, 2005

BRYAN BUI  
PRIMARY EXAMINER



5/26/05